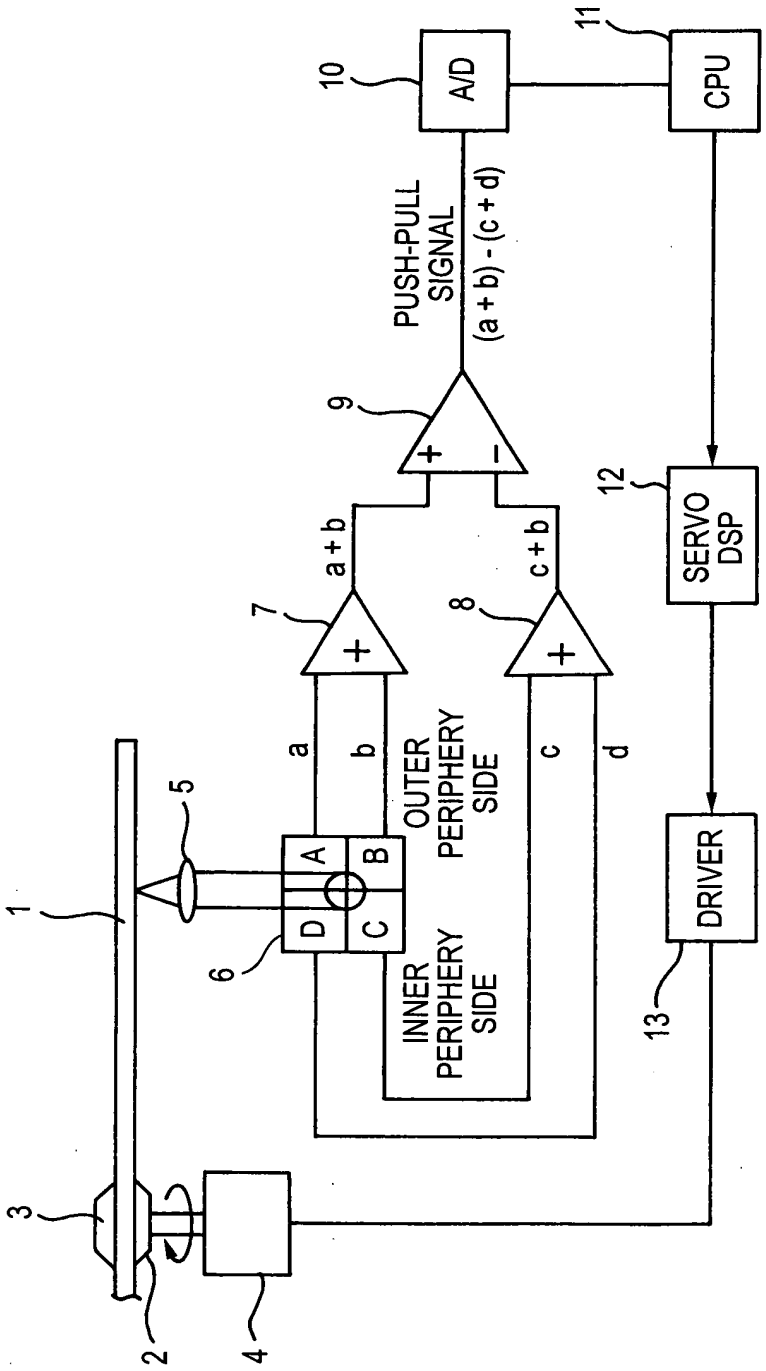
FIG. 1


10
A/D
11
CPU
PUSH-PULL SIGNAL
(a + b) - (c + d)
9
+
−
12
SERVO DSP
a + b
c + b
7
8
+
+
a
b
c
d
OUTER PERIPHERY SIDE
INNER PERIPHERY SIDE
A
B
C
D
5
6
1
2
3
4
13
DRIVER

2/7

FIG. 2

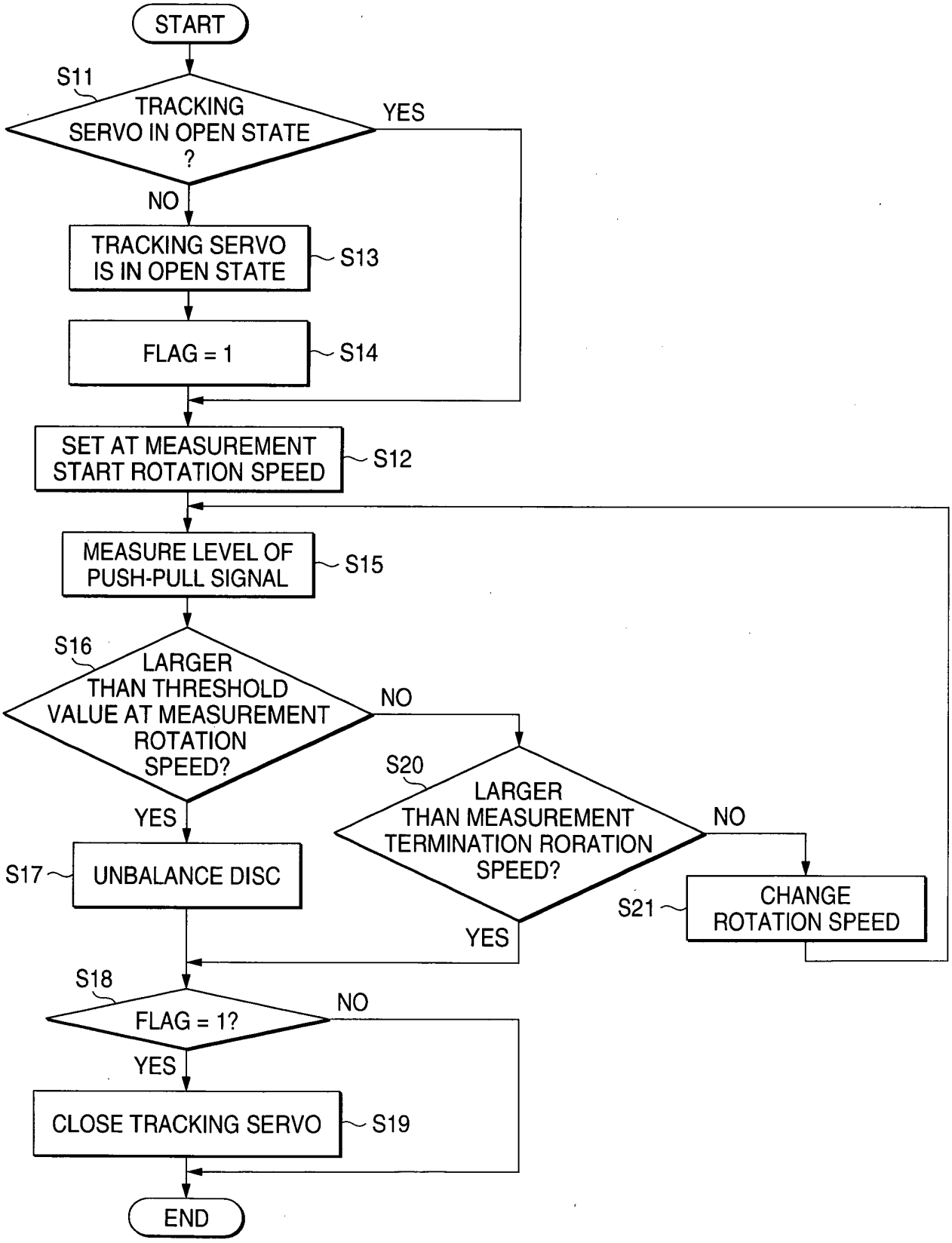

START
S11
TRACKING SERVO IN OPEN STATE ?
YES
NO
TRACKING SERVO IS IN OPEN STATE
S13
FLAG = 1
S14
SET AT MEASUREMENT START ROTATION SPEED
S12
MEASURE LEVEL OF PUSH-PULL SIGNAL
S15
S16
LARGER THAN THRESHOLD VALUE AT MEASUREMENT ROTATION SPEED?
NO
YES
S20
LARGER THAN MEASUREMENT TERMINATION RORATION SPEED?
NO
YES
S17
UNBALANCE DISC
S21
CHANGE ROTATION SPEED
S18
FLAG = 1?
NO
YES
CLOSE TRACKING SERVO
S19
END

FIG. 3A

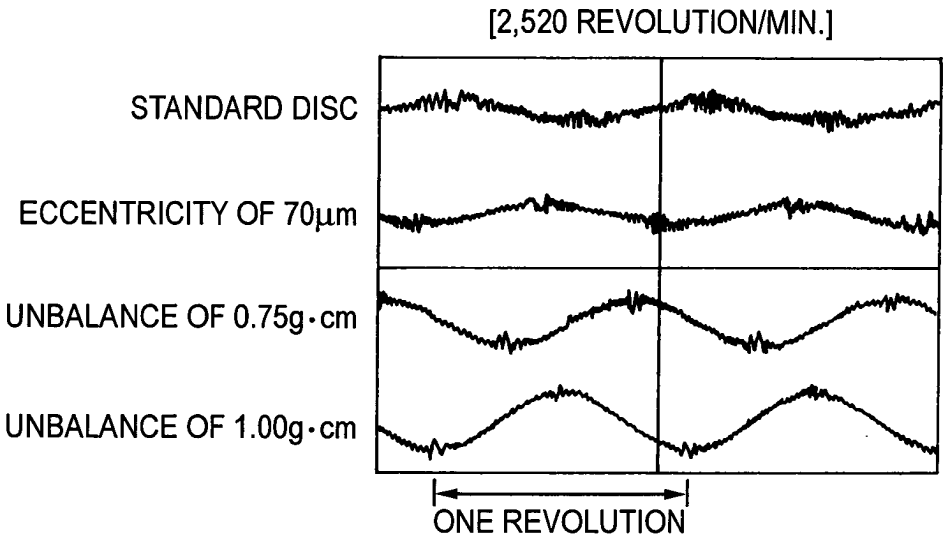


FIG. 3B

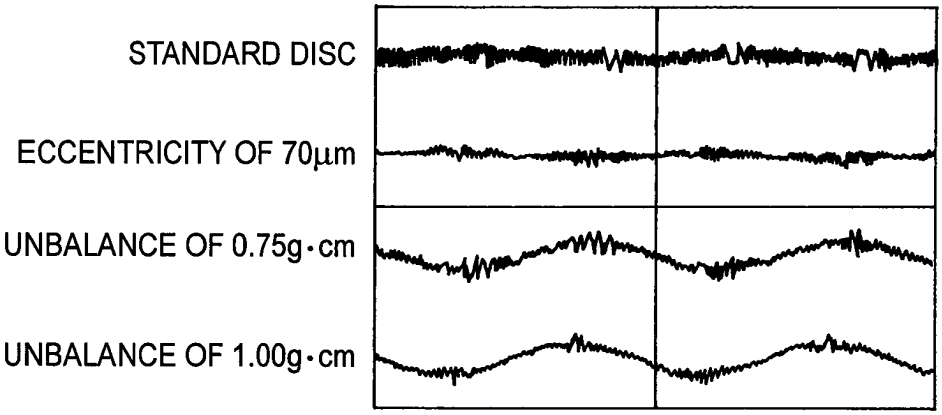


FIG. 3C

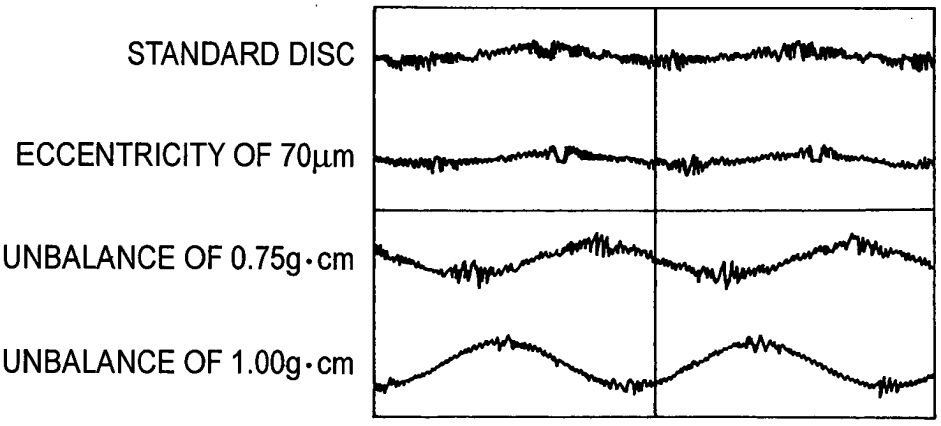


FIG. 4A

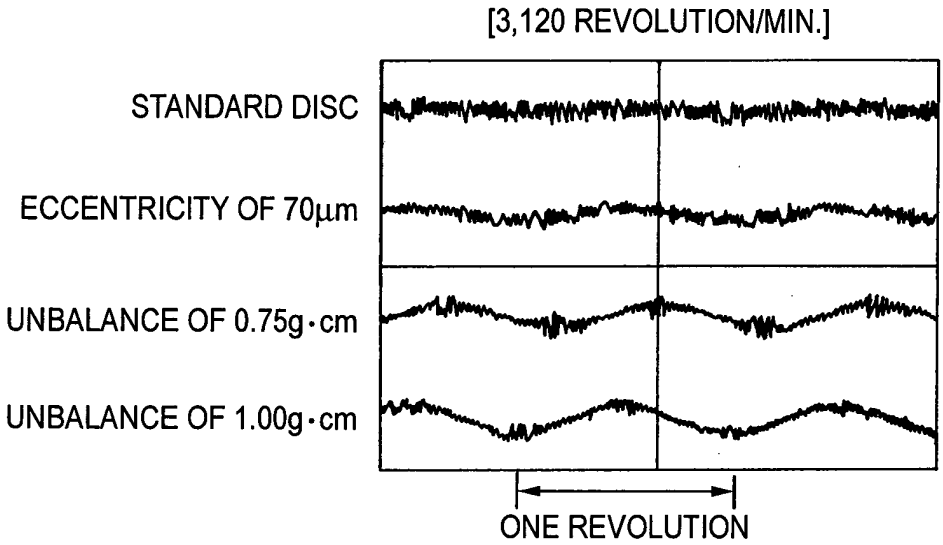


FIG. 4B

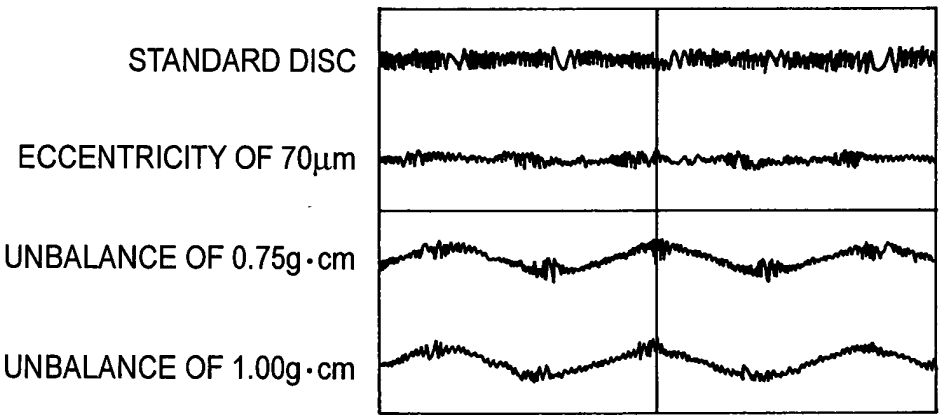


FIG. 4C

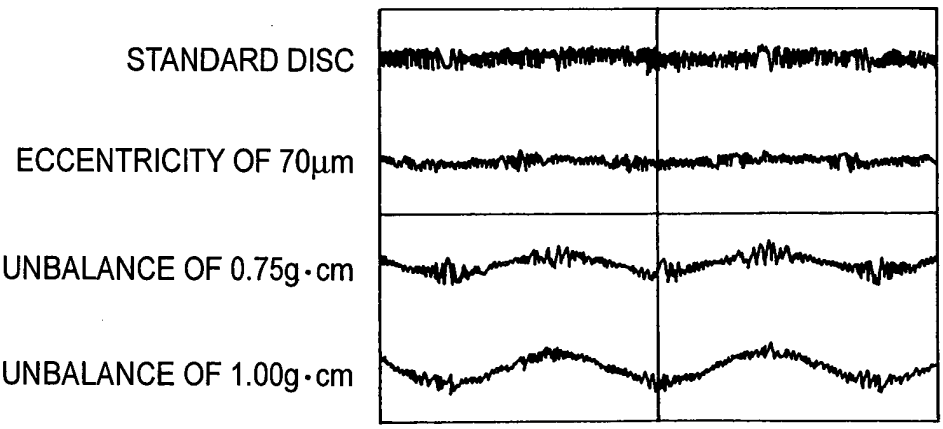


FIG. 5A

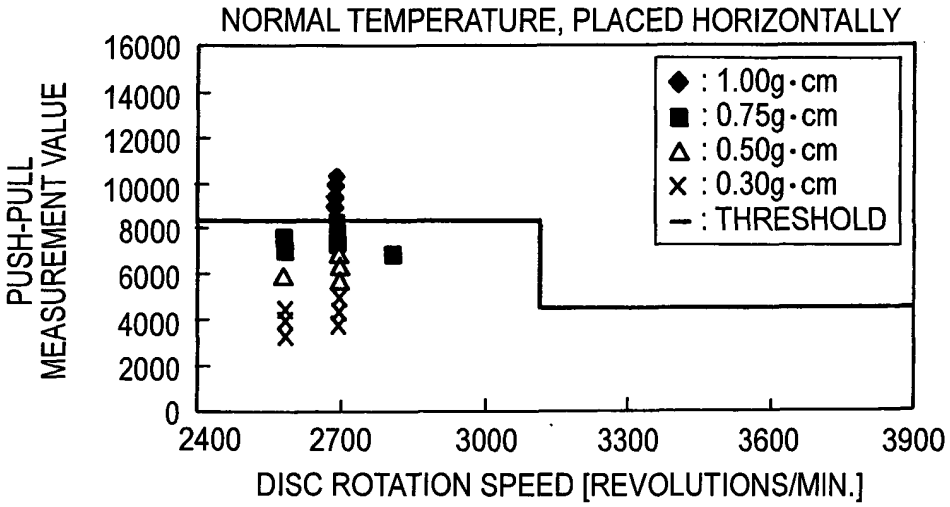


FIG. 5B

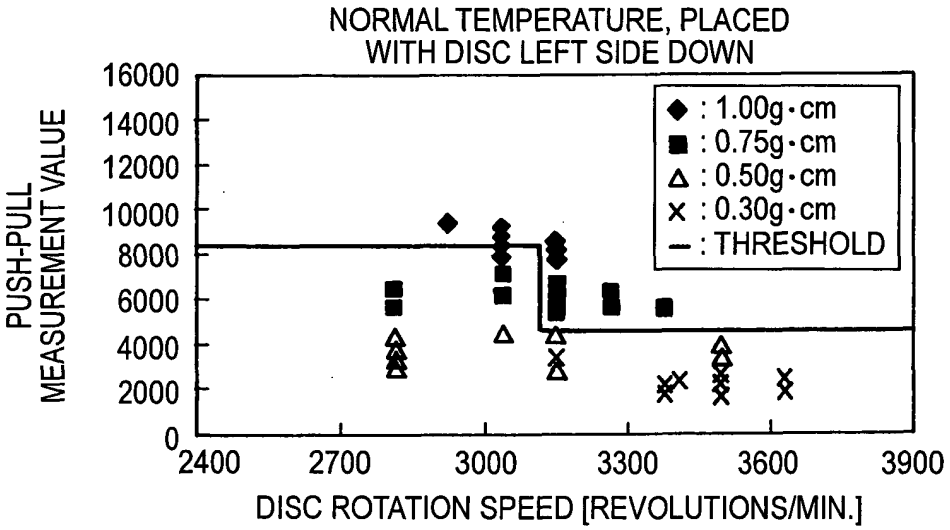


FIG. 5C

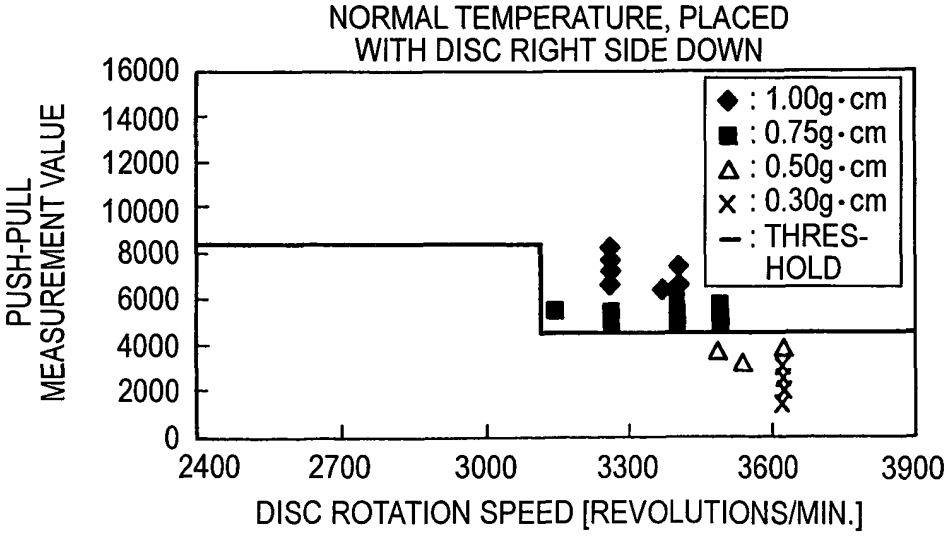


FIG. 6

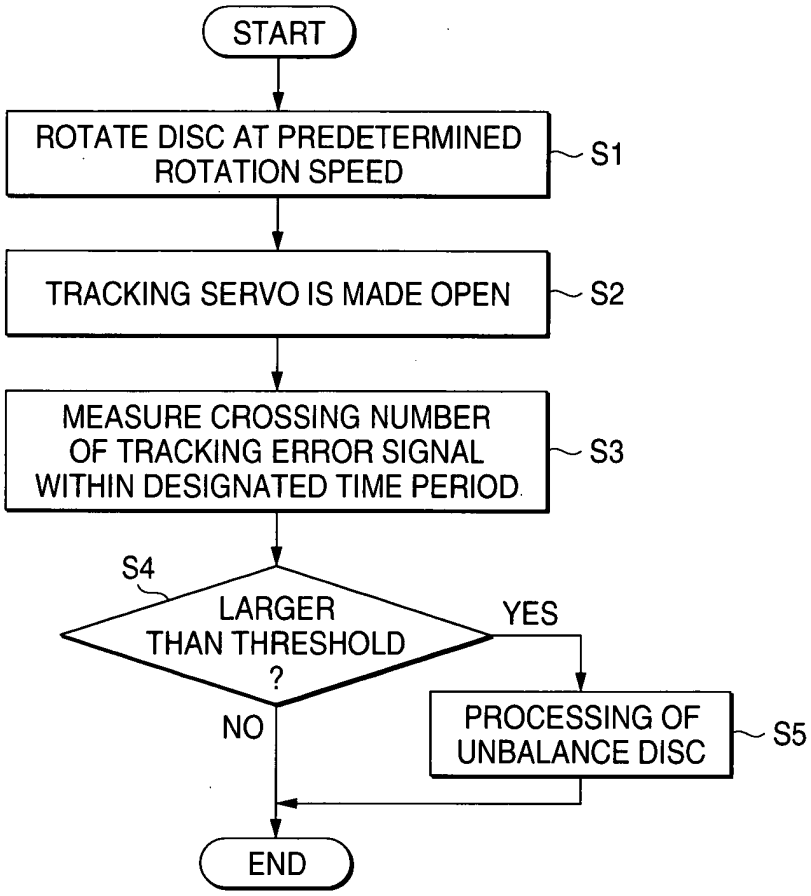
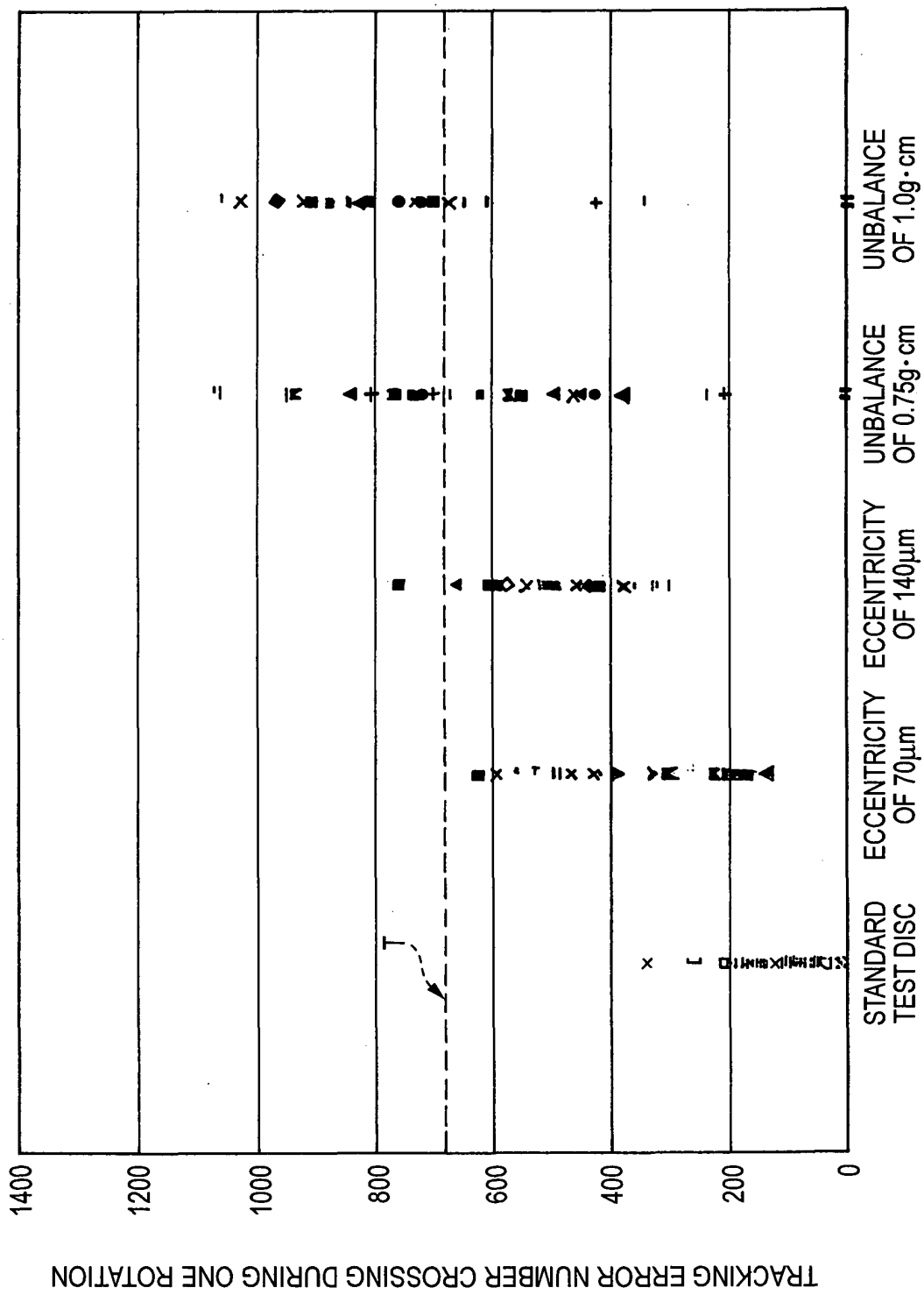

START
ROTATE DISC AT PREDETERMINED ROTATION SPEED
S1
TRACKING SERVO IS MADE OPEN
S2
MEASURE CROSSING NUMBER OF TRACKING ERROR SIGNAL WITHIN DESIGNATED TIME PERIOD
S3
S4
LARGER THAN THRESHOLD ?
YES
NO
PROCESSING OF UNBALANCE DISC
S5
END

FIG. 7


TRACKING ERROR NUMBER CROSSING DURING ONE ROTATION
1400
1200
1000
800
600
400
200
0
STANDARD TEST DISC
ECCENTRICITY OF 70μm
ECCENTRICITY OF 140μm
UNBALANCE OF 0.75g·cm
UNBALANCE OF 1.0g·cm